

**WHAT IS CLAIMED IS:**

1. A substrate structure for an integrated circuit package to be electrically connected to a printed circuit board, the substrate structure comprising:

5 a plurality of lower metal sheets arranged in an array, each of the lower metal sheets having an upper surface and a lower surface;

a plurality of upper metal sheets arranged in an array, each of the upper metal sheets having an upper surface and a lower surface, the lower surfaces of the upper metal sheets being stacked on the upper surfaces of the lower metal sheets; and

10 an encapsulant for encapsulating the lower metal sheets and the upper metal sheets, wherein the upper surfaces of the upper metal sheets are exposed from the encapsulant, and the lower surfaces of the lower metal sheets are exposed from the encapsulant and electrically connected to the printed circuit board.

15 2. The substrate structure according to claim 1, further comprising a middle board arranged among and flush with the upper metal sheets, and the integrated circuit package being mounted to the middle board.

3. The substrate structure according to claim 1, wherein the encapsulant is made of plastic material.

20 4. A method for manufacturing a substrate structure for an integrated circuit package, comprising the steps of:

providing a plurality of lower metal sheets arranged in an array, each of the lower metal sheets having an upper surface and a lower surface;

providing a plurality of upper metal sheets arranged in an array, each of the upper metal sheets having an upper surface and a lower surface, the lower  
5 surfaces of the upper metal sheets being stacked on the upper surfaces of the lower metal sheets; and

providing an encapsulant for encapsulating the lower metal sheets and the upper metal sheets, wherein the upper surfaces of the upper metal sheets are exposed from the encapsulant, and the lower surfaces of the lower metal sheets  
10 are exposed from the encapsulant and electrically connected to a printed circuit board.

5. The method according to claim 1, further comprising:

arranging a middle board among and flush with the upper metal sheets, and the integrated circuit package being mounted to the middle board.

15 6. The method according to claim 1, wherein the encapsulant is made of industrial plastic material by way of injection molding.